

Claims

1. A system comprising:

an enclosure shaped with a plurality of opposed pairs of first and second guides, the first guides all substantially coplanar within a first plane, the second guides all substantially coplanar within a second plane,

each pair of guides defining a respective plane, the respective planes of the pairs of guides all parallel to each other, each pair of guides separated by a respective spacing, each pair of guides shaped to receive a respective planar carrier by insertion in a first direction along the pair of guides,

the enclosure shaped to receive a key plate parallel to the first plane and intersecting the first guides, said key plate having a plurality of feature areas, each feature area corresponding to a respective plane of one of the pairs of guides, each feature area presenting a predetermined pattern of barriers to movement in the first direction, the barriers disposed at at least two locations along the first direction;

the enclosure further comprising a plurality of electrical connectors corresponding to respective pairs of first and second guides, each connector disposed between ends of its respective first and second guides and positioned perpendicular thereto.

2. The system of claim 1 wherein the key plate is substantially linear and is substantially perpendicular to the first direction.

3. The system of claim 1 further comprising a plurality of substantially planar rectangular carriers each having a first rail and a second rail parallel to each other, each carrier shaped for insertion into a pair of first and second guides with the first rail engaged to the first guide and the

second rail engaged to the second guide, the first rail of each carrier disposed with protruding pins at at least two locations along its length, the pins disposed to pass by the predetermined pattern of barriers.

- 5 4. A substantially planar rectangular carrier carrying a disk drive, the carrier having first and second rails parallel to each other, the carrier having an electrical connector along an edge between the first and second rails, the carrier having a handle along the remaining edge, the first rail disposed with protruding pins at at least first and second locations along its length, the first location closer to the electrical connector than the second location.

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5. An insertion method for use with a system comprising a carrier and an enclosure, the enclosure shaped with a plurality of opposed pairs of first and second guides, the first guides all substantially coplanar within a first plane, the second guides all substantially coplanar within a second plane, each pair of guides defining a respective plane, the respective planes of the pairs of guides all parallel to each other, each pair of guides separated by a respective spacing, each pair of guides shaped to receive a respective planar carrier by insertion in a first direction along the pair of guides, the enclosure shaped to receive a key plate parallel to the first plane and intersecting the first guides, said key plate having a plurality of feature areas, each feature area corresponding to a respective plane of one of the pairs of guides, each feature area presenting a predetermined pattern of barriers to movement in the first direction, the barriers disposed at at least third and fourth locations along the first direction, the third location closer to the first connector than the second location, the substantially planar rectangular carrier carrying a disk drive, the enclosure further comprising a plurality of first electrical connectors corresponding to respective pairs of first and second guides, each first connector disposed between ends of its respective first and second guides and positioned perpendicular thereto, the carrier having first and second rails parallel to each other, the carrier having a second electrical connector along an edge between the first and second rails, the carrier having a handle along the remaining edge, the first rail disposed with protruding pins at at least first and second locations along its length, the first location closer to the second electrical connector than the second

location, the method comprising the steps of:

inserting the carrier partially into a first pair of guides;

5 while the carrier is being inserted, striking a protruding pin at the first location against a barrier at the third location, the first and second electrical connectors failing to be in contact.

10 6. An insertion method for use with a system comprising a carrier and an enclosure, the enclosure shaped with a plurality of opposed pairs of first and second guides, the first guides all substantially coplanar within a first plane, the second guides all substantially coplanar within a second plane, each pair of guides defining a respective plane, the respective planes of the pairs of guides all parallel to each other, each pair of guides separated by a respective spacing, each pair of guides shaped to receive a respective planar carrier by insertion in a first direction along the pair of guides, the enclosure shaped to receive a key plate parallel to the first plane and intersecting the first guides, said key plate having a plurality of feature areas, each feature area corresponding to a respective plane of one of the pairs of guides, each feature area presenting a predetermined pattern of barriers to movement in the first direction, the barriers disposed at at least third and fourth locations along the first direction, the third location closer to the first connector than the second location, the substantially planar rectangular carrier carrying a disk drive, the enclosure further comprising a plurality of first electrical connectors corresponding to respective pairs of first and second guides, each first connector disposed between ends of its respective first and second guides and positioned perpendicular thereto, the carrier having first and second rails parallel to each other, the carrier having a second electrical connector along an edge between the first and second rails, the carrier having a handle along the remaining edge, the first rail disposed with protruding pins at at least first and second locations along its length, the first location closer to the second electrical connector than the second location, the method comprising the steps of:

inserting the carrier partially into a first pair of guides;

while the carrier is being inserted, striking a protruding pin at the second location against a barrier at the fourth location, the first and second electrical connectors failing to be in contact. An insertion method for use with a system comprising a carrier and an enclosure, the enclosure shaped with a plurality of opposed pairs of first and second guides, the first guides all substantially coplanar within a first plane, the second guides all substantially coplanar within a second plane, each pair of guides defining a respective plane, the respective planes of the pairs of guides all parallel to each other, each pair of guides separated by a respective spacing, each pair of guides shaped to receive a respective planar carrier by insertion in a first direction along the pair of guides, the enclosure shaped to receive a key plate parallel to the first plane and intersecting the first guides, said key plate having a plurality of feature areas, each feature area corresponding to a respective plane of one of the pairs of guides, each feature area presenting a predetermined pattern of barriers to movement in the first direction, the barriers disposed at at least third and fourth locations along the first direction, the third location closer to the first connector than the second location, the substantially planar rectangular carrier carrying a disk drive, the enclosure further comprising a plurality of first electrical connectors corresponding to respective pairs of first and second guides, each first connector disposed between ends of its respective first and second guides and positioned perpendicular thereto, the carrier having first and second rails parallel to each other, the carrier having a second electrical connector along an edge between the first and second rails, the carrier having a handle along the remaining edge, the first rail disposed with protruding pins at at least first and second locations along its length, the first location closer to the second electrical connector than the second location, the method comprising the steps of:

inserting the carrier partially into a first pair of guides;

while the carrier is being inserted, striking a protruding pin at the first location against a barrier at the fourth location, the first and second electrical connectors failing to be in contact.

7. An insertion method for use with a system comprising a carrier and an enclosure, the enclosure shaped with a plurality of opposed pairs of first and second guides, the first guides all substantially coplanar within a first plane, the second guides all substantially coplanar within a second plane, each pair of guides defining a respective plane, the respective planes of the pairs of guides all parallel to each other, each pair of guides separated by a respective spacing, each pair of guides shaped to receive a respective planar carrier by insertion in a first direction along the pair of guides, the enclosure shaped to receive a key plate parallel to the first plane and intersecting the first guides, said key plate having a plurality of feature areas, each feature area corresponding to a respective plane of one of the pairs of guides, each feature area presenting a predetermined pattern of barriers to movement in the first direction, the barriers disposed at at least third and fourth locations along the first direction, the third location closer to the first connector than the second location, the substantially planar rectangular carrier carrying a disk drive, the enclosure further comprising a plurality of first electrical connectors corresponding to respective pairs of first and second guides, each first connector disposed between ends of its respective first and second guides and positioned perpendicular thereto, the carrier having first and second rails parallel to each other, the carrier having a second electrical connector along an edge between the first and second rails, the carrier having a handle along the remaining edge, the first rail disposed with protruding pins at at least first and second locations along its length, the first location closer to the second electrical connector than the second location, the method comprising the steps of:

inserting the carrier into a first pair of guides, and bringing the first and second electrical connectors into contact.

8. A key plate comprising a substantially linear member elongated in a first direction, the key plate having a plurality of feature areas disposed at equally spaced distances along the first direction, each feature area presenting a predetermined pattern of barriers to movement in a second direction perpendicular to the first direction, the barriers disposed at at least first and second locations along the second direction, the pattern of barriers being identical in each of the

feature areas.

9. The key plate of claim 8 wherein the number of feature areas is at least ten.

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